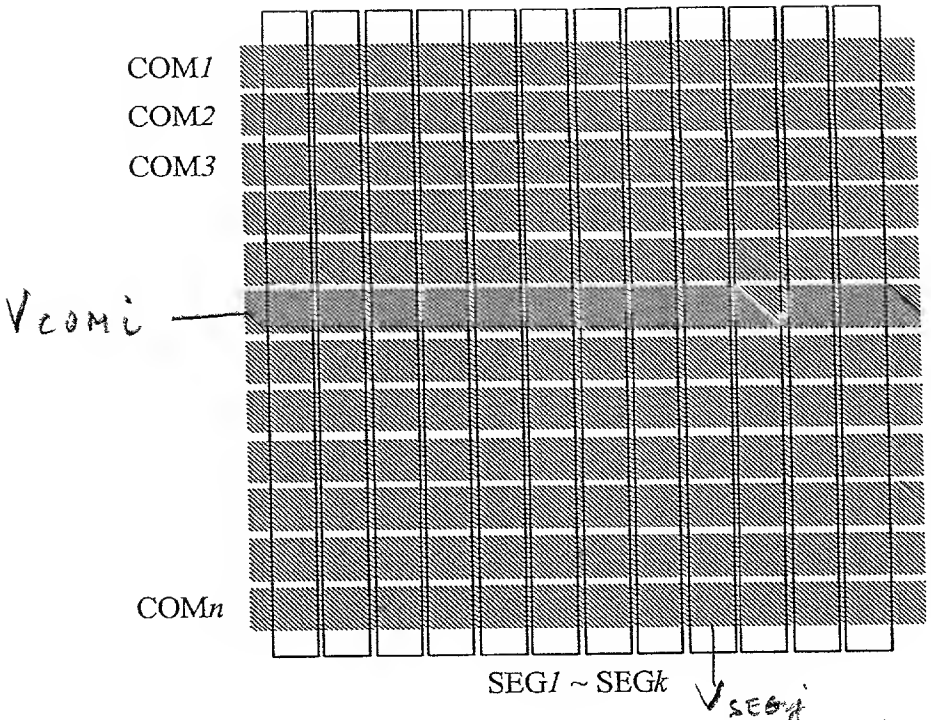


Fig. 1 A see through view of a LCD panel and its ITO electrodes

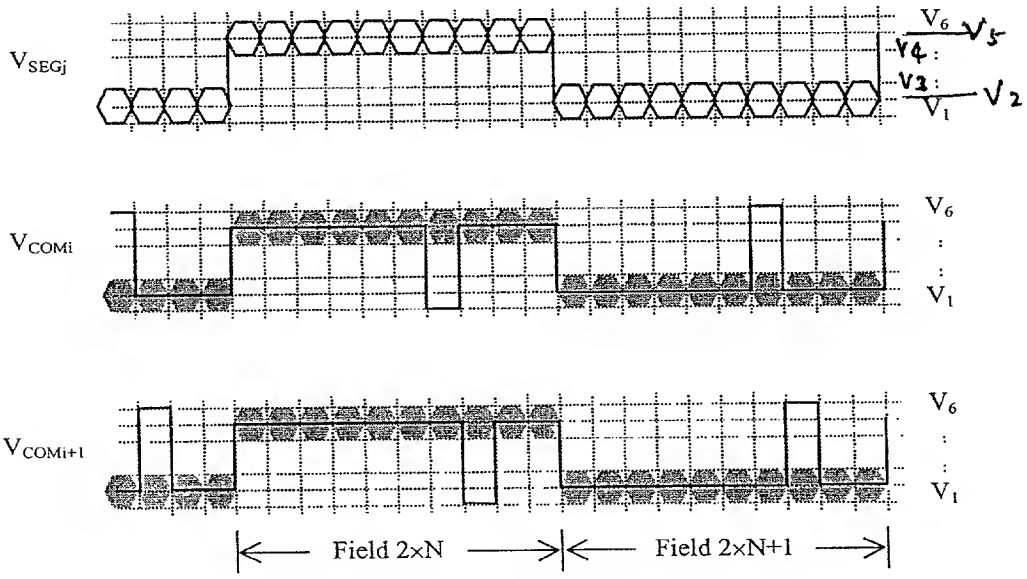
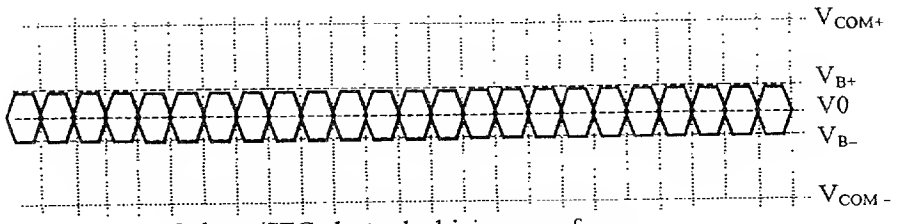
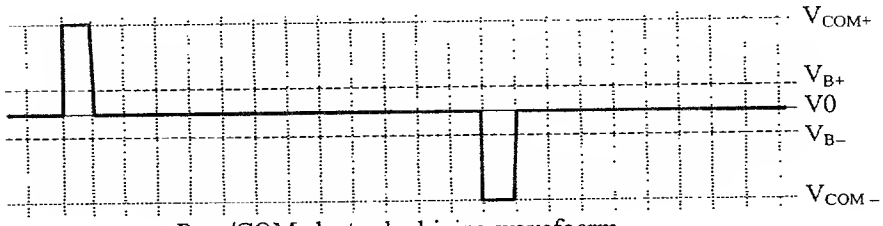


Fig. 2a IAPT driving Wave forms for COM electrodes and SEG electrodes



Column/SEG electrode driving wavefoerm



Row/COM electrode driving wavefoerm

Fig. 2b APT driving Wave forms for COM electrodes and SEG electrodes

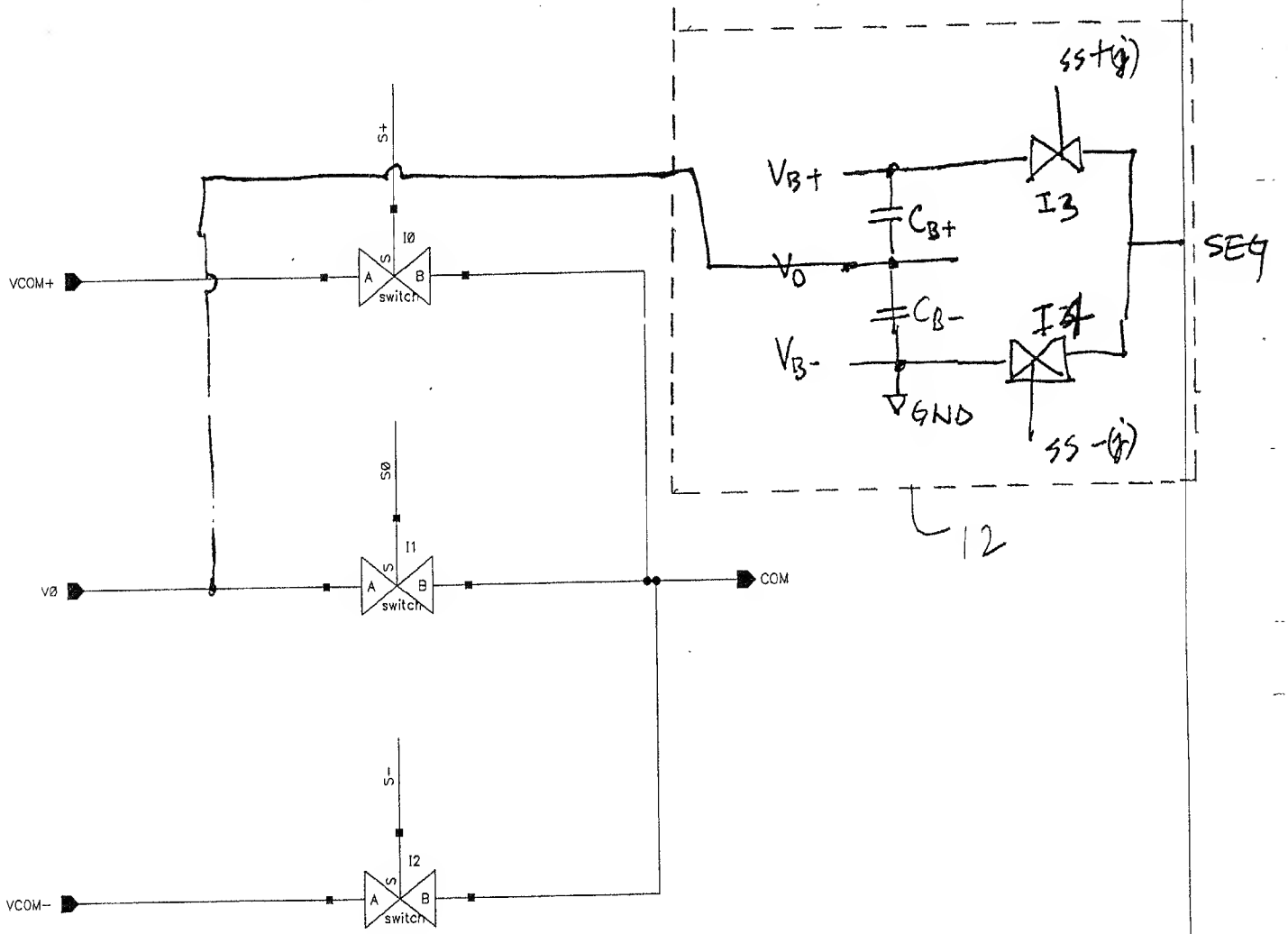

S+
I0
S
A
B
switch
VCOM+
S0
I1
VØ
COM
S-
I2
VCOM-
SS+(i)
VB+
CB+
I3
SEG
VO
CB-
I4
VB-
GND
SS-(i)
12

Fig. 3a

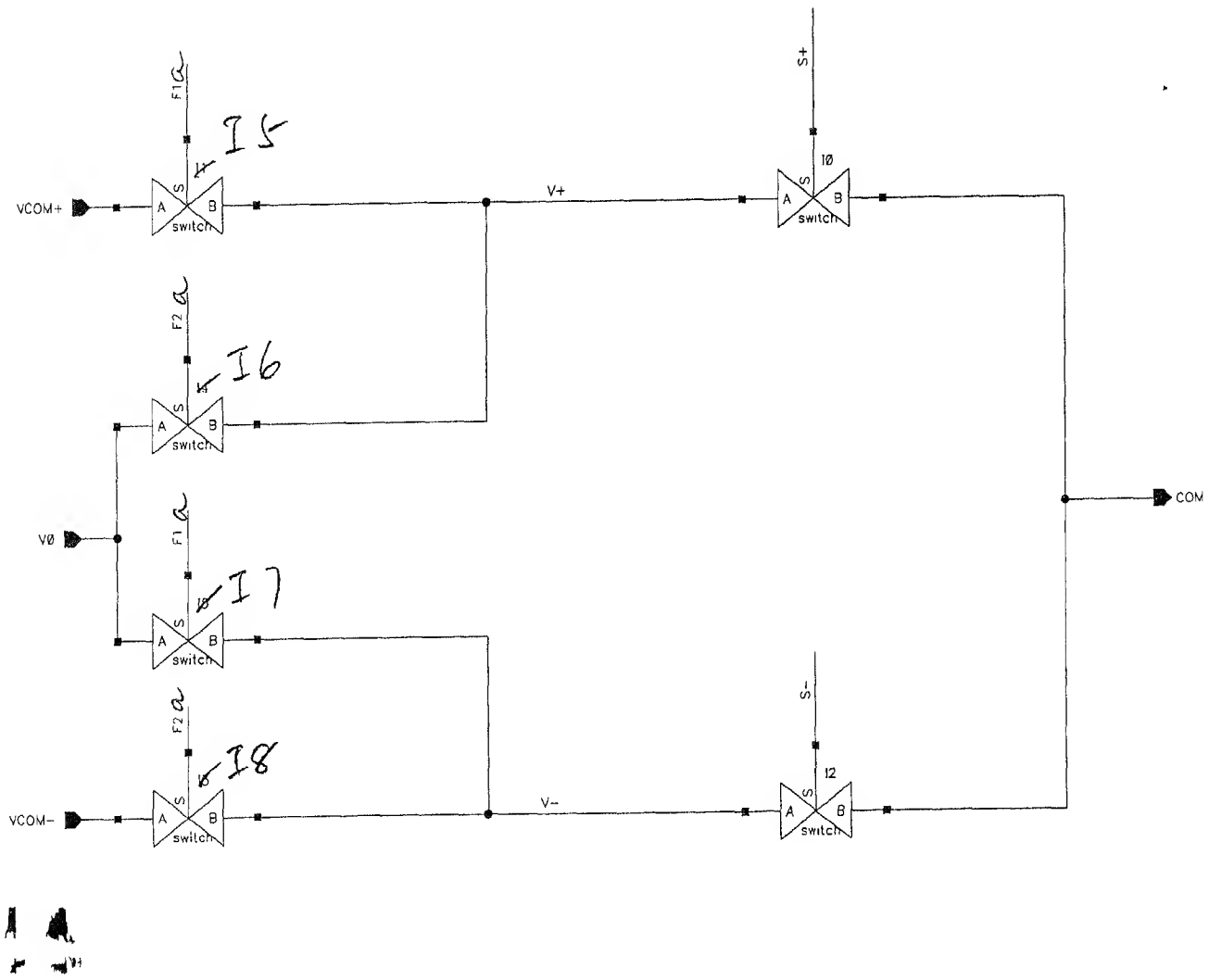


Fig. 3b

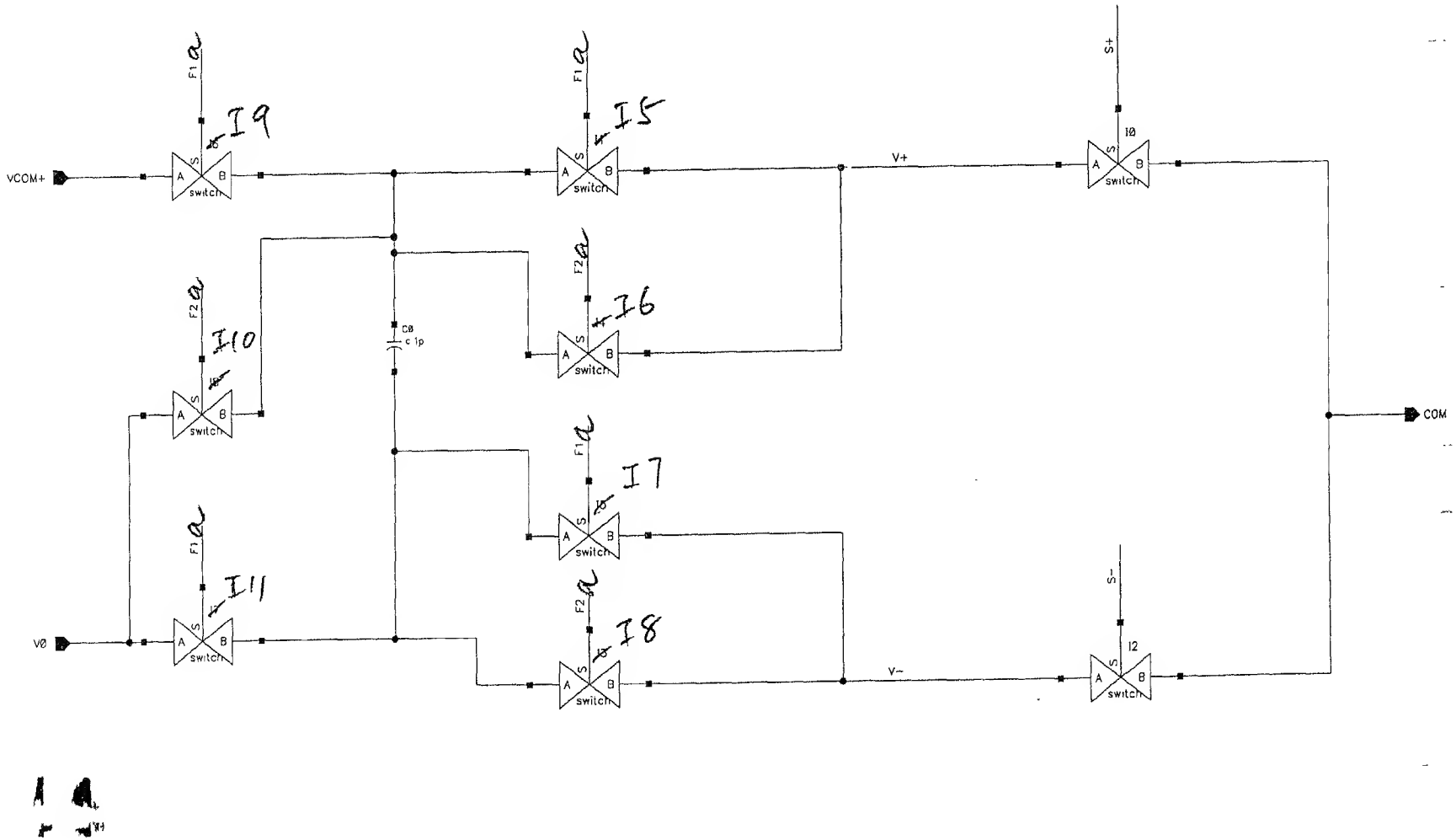

VCOM+
VØ
F1
F2
I9
I5
I10
I6
I7
I11
I8
I0
I2
S+
S-
V+
V-
CØ
c 1p
COM
A
B
S
switch

Fig. 3c

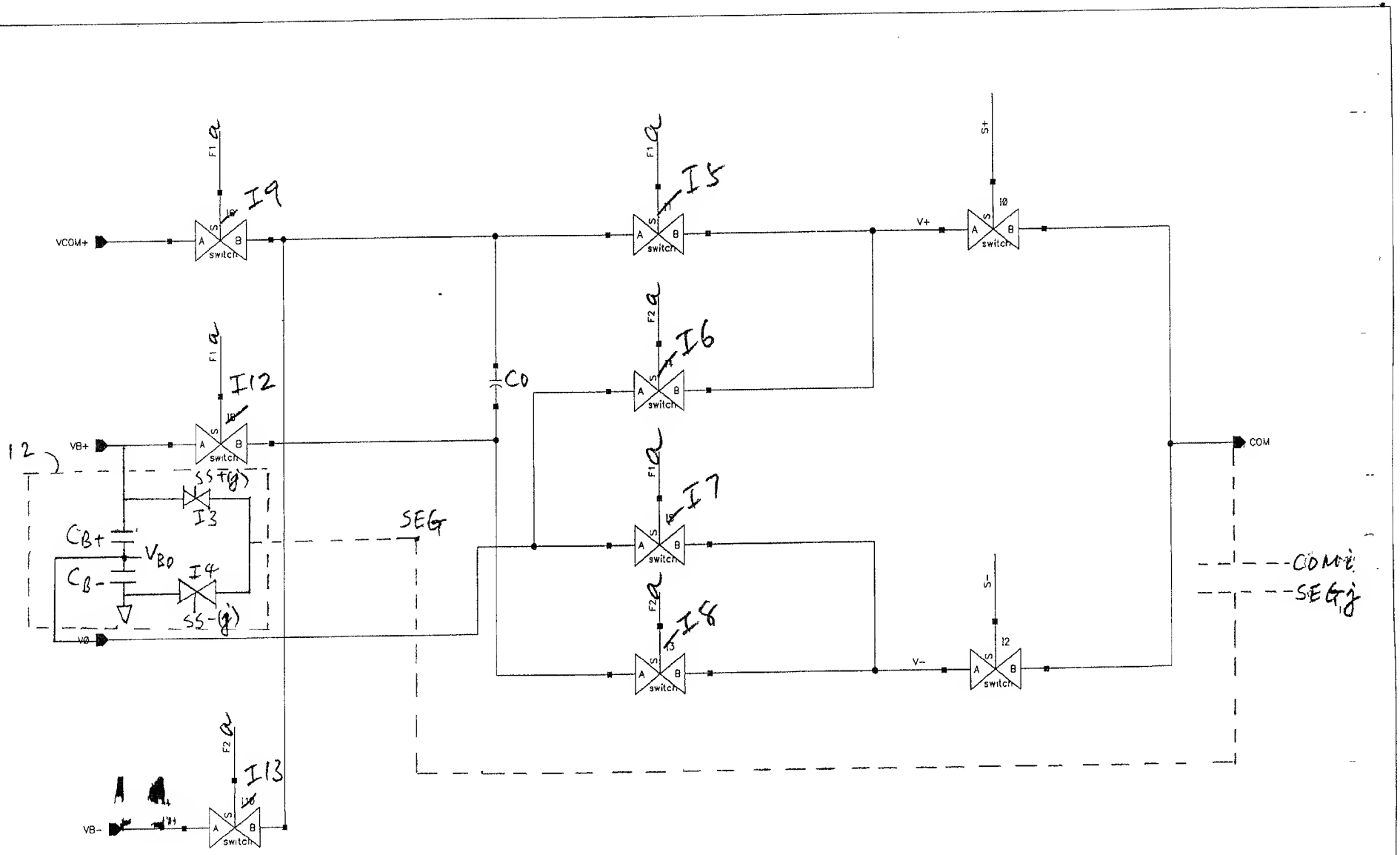

VCOM+
VB+
VB-
V+
V-
COM
SEG
CO
CB+
CB-
VBO
SS+(j)
SS-(j)
I1
I2
I3
I4
I5
I6
I7
I8
I9
I10
I12
I13
F1
F2
S+
S-
switch
A
B
S

Fig. 3d

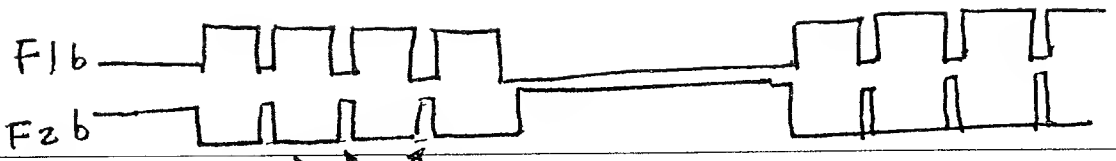


Fig 4c

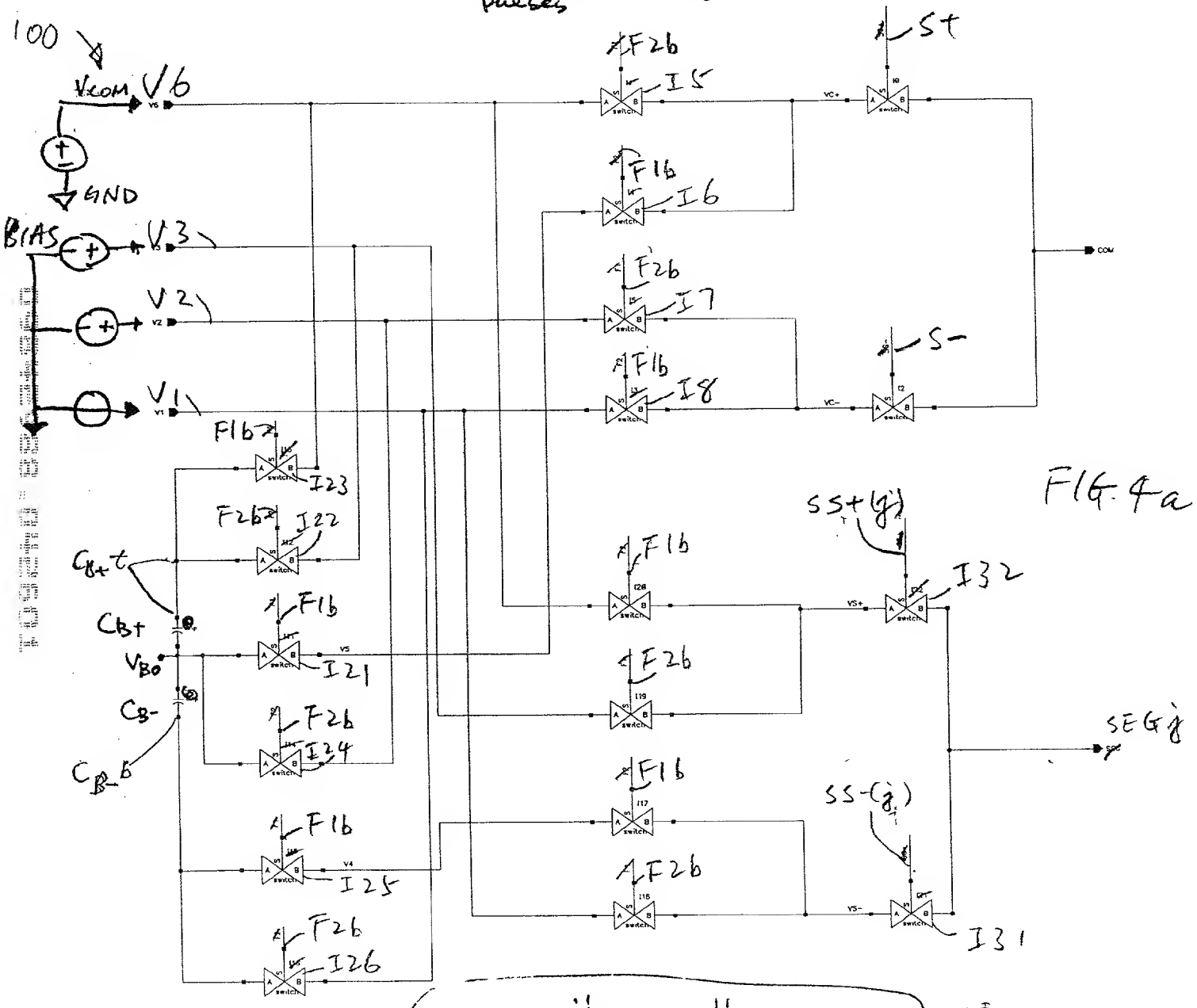


FIG. 4a

$F2b = \overline{F1b}$

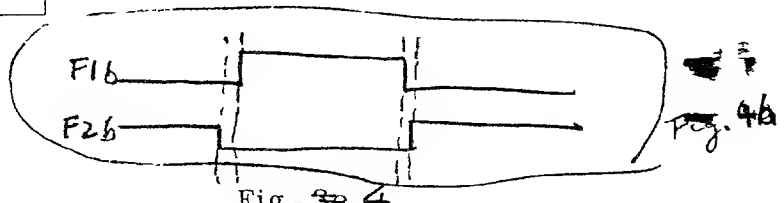


Fig. ~~3c~~ 4

Fig. 4b

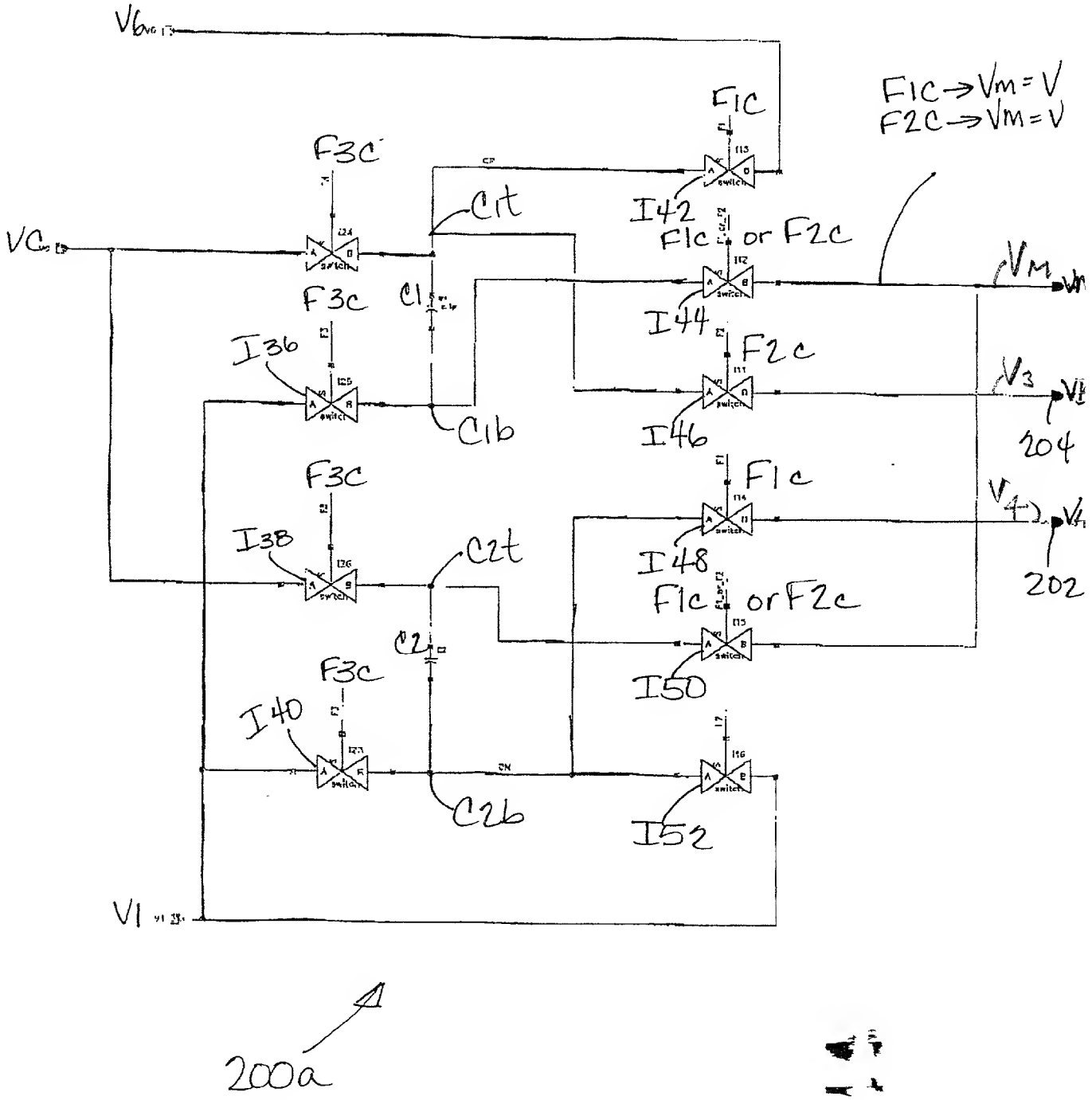

F1C → Vm = V
F2C → Vm = V
F1C
F3C
C1t
I42
VC
F1c or F2c
Vm
F3C
C1
I44
I36
F2c
V3
C1b
I46
204
F3C
F1c
I38
C2t
I48
202
F1c or F2c
C2
F3C
I50
I40
C2b
I52
V1
200a

Fig. 5a

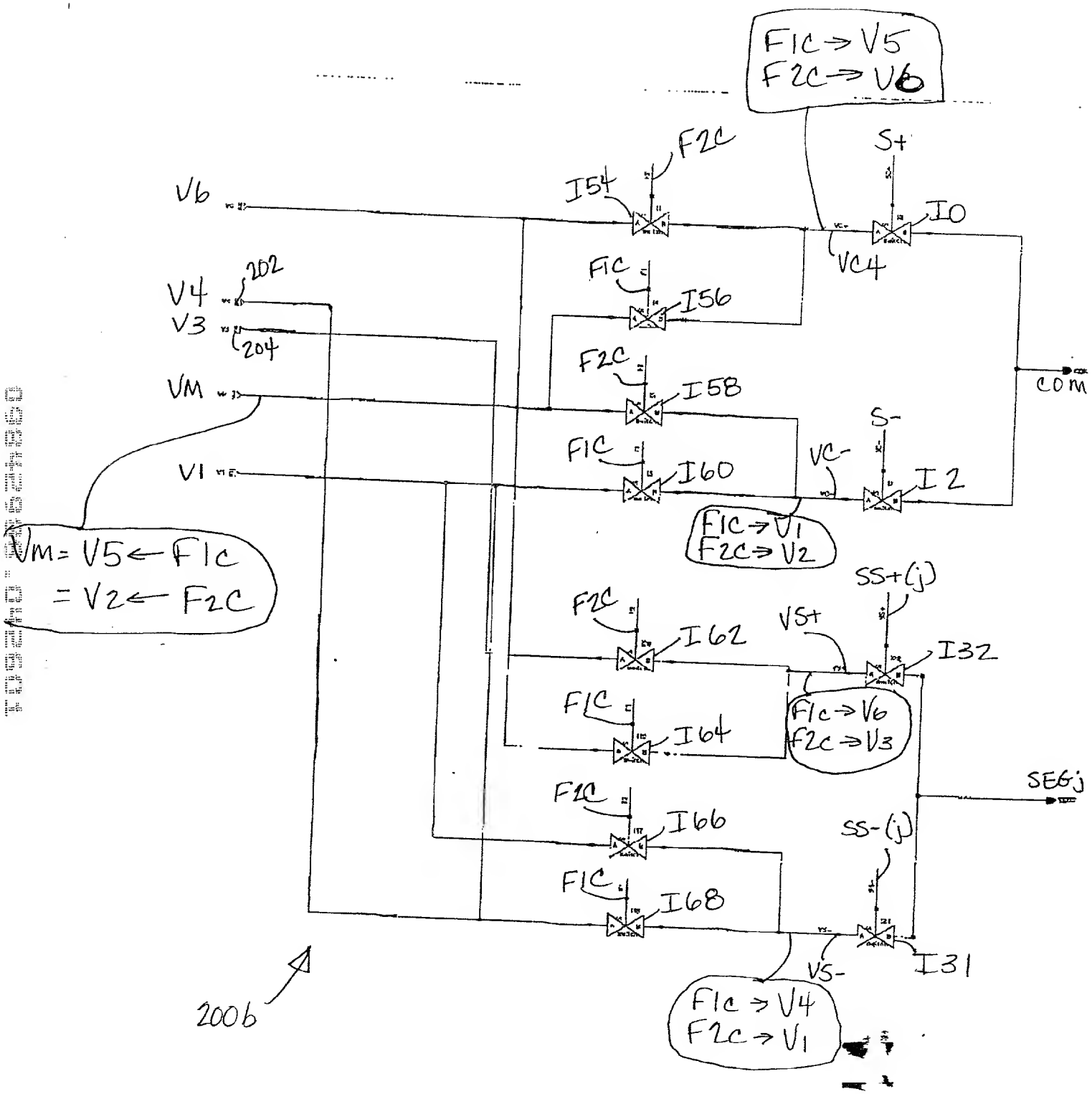

F1C → V5
F2C → V6
F2C
S+
I54
I0
V6
VC+
VC4
F1C
I56
202
V4
V3
204
F2C
I58
COM
VM
S-
F1C
I60
VC-
I2
V1
F1C → V1
F2C → V2
VM = V5 ← F1C
= V2 ← F2C
SS+(j)
F2C
I62
VS+
I32
F1C → V6
F2C → V3
F1C
I64
SEGj
F1C
I66
SS-(j)
F1C
I68
VS-
I31
F1C → V4
F2C → V1
200b

Fig. ~~3~~ 5b

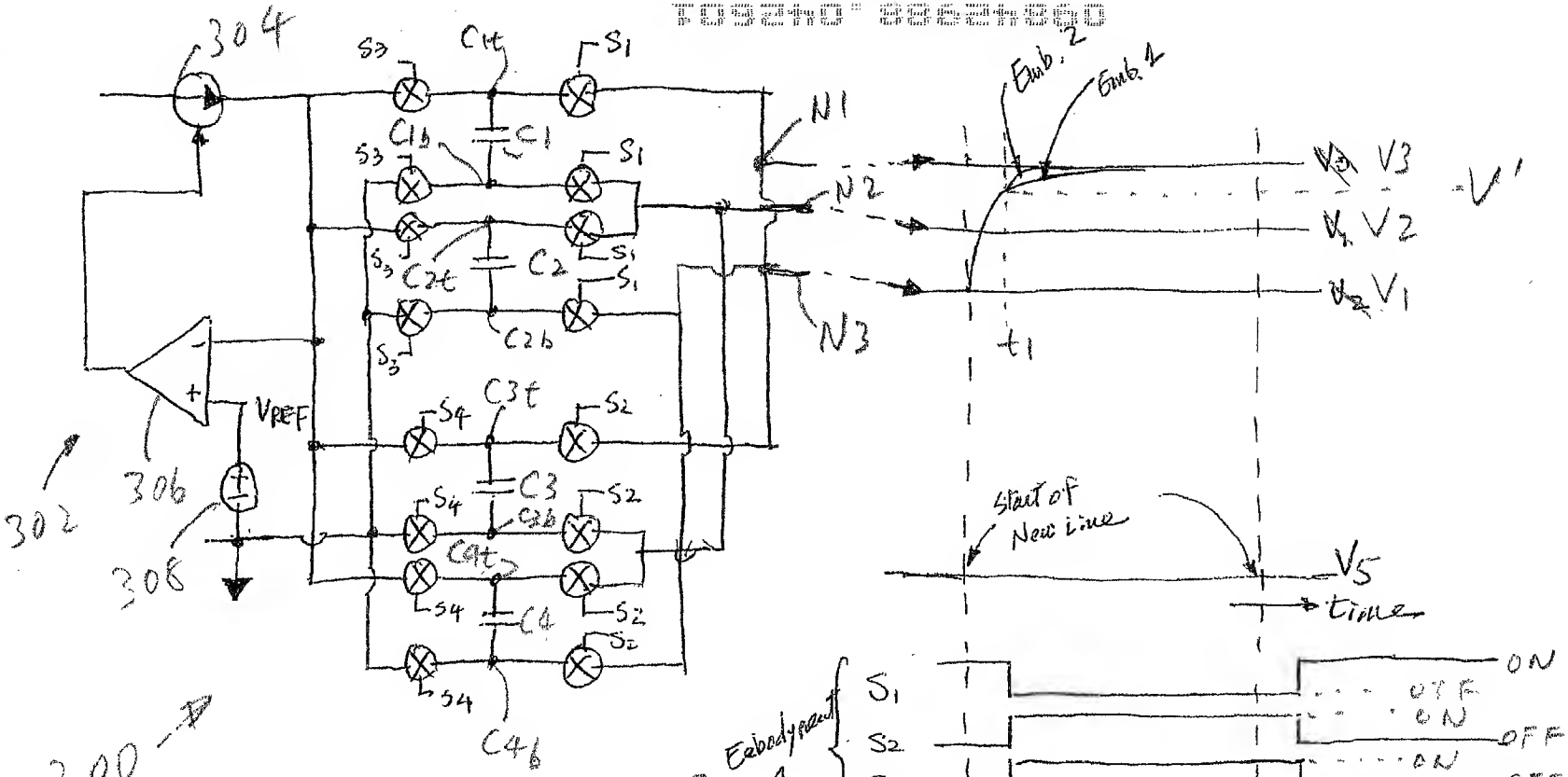


FIG. 6a

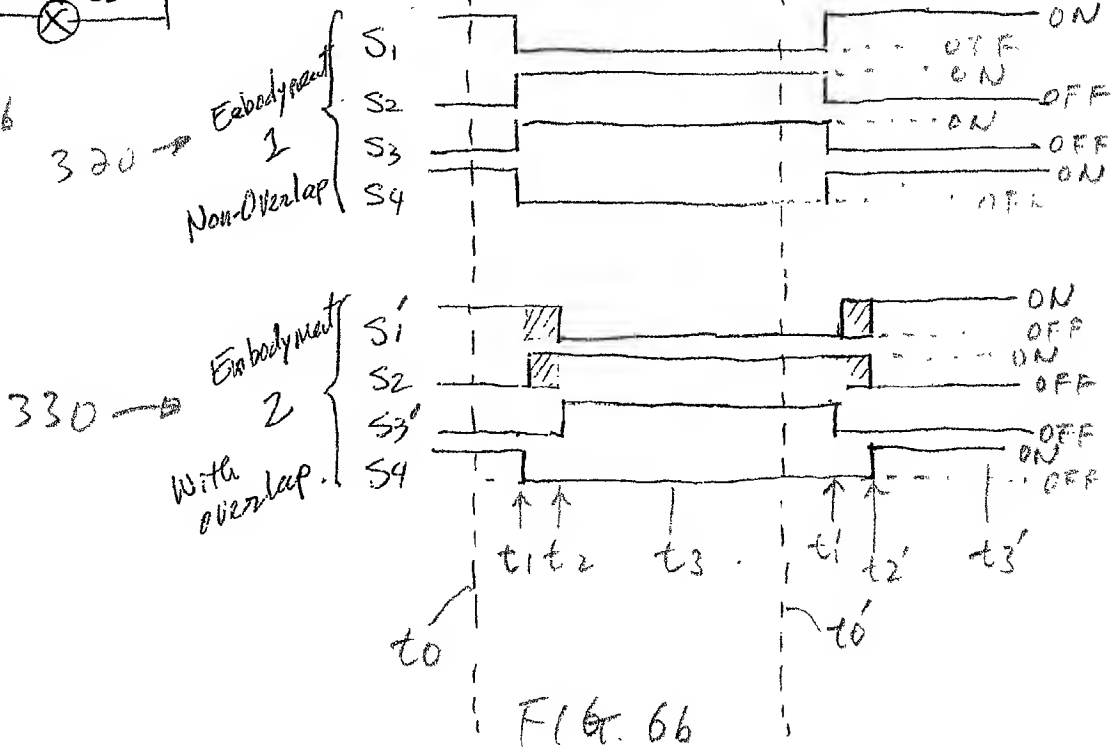


FIG. 6b